

18/11/2015

السبب

م. ج. ب.

project-2

$$K_a = 0.01$$

$$A = 1 \text{ m}^2$$

$$B = 1/2$$

$$J = 2$$

$$K_a = 0.01$$

$$K_b = 0.1$$

$$K_t = 10$$

$$L_a = 1$$

$$R_a = 1$$

مطلوب في فترات 5 ا. ب. ج. عمل Controller للموتور (Hardware only)

$$\text{for } \frac{\Theta(s)}{V_a(s)} = \frac{K_t}{s(L_a s + R_a)(J s + B) + s K_t K_b}$$

$$T.F. = \frac{\Theta(s)}{V_a(s)} * K_a * \frac{1}{As}$$

$$= \frac{K_a K_t}{As^2 (L_a s + R_a)(J s + B) + As^2 K_t K_b}$$

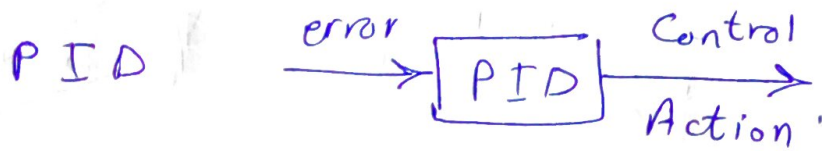
Task-1

Block Diagram و ج. ب.

head Compensator

Task 2

لنفس القيم، اعمل بار PID



- present (Proportional)
 $C_p = K_p e(t)$

- Past (Integral) (offset)
 $C_i = K_i \int e(t)$
 (steady state)

- Future (Differential)
 $C_d = K_d \frac{de}{dt} = -K_d \frac{dy}{dt}$
 like lead comp.
 (Dynamics)

$$C = C_p + C_i + C_d$$

$$PID = \frac{K_p S + K_i + K_d S^2}{S}$$

task 3

* Integral windup
 * Derivative kick } search for it
 as PID
 problem